(possibly due to Nocardia) which, in retrospect, had been present one month earlier. The other patient died and at autopsy was found to have a small pulmonary nocardial abscess that had been clinically and roentgenographically inapparent. We consider the possibility that the patient whose metastatic skin abscess has become clinically apparent might also have a nocardial lesion growing silently in the brain.

Sulfonamides are the "classic agents" for treating nocardiosis because they are extremely effective in the great majority of patients who are not moribund due to one or more brain abscesses. However, there are patients who cannot take sulfonamides or in whom the infection does not appear to be responding to these agents. It is primarily for these reasons, as clearly stated by Bach et al,[3] that their recent paper describing the use of drugs other than sulfonamides in two patients with nocardiosis is important. In the patient of Bach et al, sputum culture became positive within 48 hours after discontinuing a two-month course of minocycline, and when the patient died from unrelated causes after another five-to-six week course of minocycline, sections of lung at autopsy disclosed organisms compatible with Nocardia. The patient described in the other paper[4] cited by Epstein had a pulmonary nocardial lesion that stabilized on nine days of intravenous sulfisoxasole therapy. Since sulfisoxasole was not discontinued when minocycline was begun, and since it is not unreasonable to expect a cavitary nocardial lesion to take more than nine days to regress, the contribution of minocycline to the course of this patient's nocardiosis is moot. We find it difficult to accept these two published cases as evidence that minocycline is effective as the sole antimicrobial therapy for nocardiosis. However, the patient of Bach et al and Epstein's patient do constitute a small amount of evidence that minocycline may be effective in the short-term suppression of this infection. Because of the proven efficacy of sulfonamides in treating this infection, we believe that the latter antimicrobial agents remain the drugs of choice for nocardiosis.

The duration of therapy necessary to eradicate a nocardial infection is not known, but relapses have occurred often enough that the importance of treatment up to or even longer than a year has become apparent.[1,5] A healthy respect for the ability of this organism to "play possum" may be acquired from the report of a patient who was in his fifth month of sulfonamide therapy for nocardial subcutaneous abscesses when he developed clinically apparent multiple nocardial brain abscesses.[6] Although it is possible that Epstein's patient was "cured" by a two and one-half month course of minocycline, such a course of therapy is not to be considered as being "extended" in the treatment of this infection. Long-term follow-up information on his patient will be of great interest.

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The Author Replies

I FIND IT DIFFICULT to understand the criticisms raised by Drs. Krick and Remington. All that this article intended to do was to briefly present the case of a man on immunosuppressive therapy who developed an abscess on his leg due to N. asteroides and which cleared with the oral administration of minocycline hydrochloride. These correspondents list three objections to the presentation all of which seem to be answered in this less than monographic article.

First, they deny that the infection in this patient was limited to the skin. The only statement in this regard is, "There was no evidence of nocardial involvement of any system other than the skin." It is admitted in the article that, "Usually the lungs are the site of infection, but other organs—the skin, for example—may be involved either by dissemination or by direct primary infection." I have no evidence that any system other than the cutaneous one was involved. Perhaps Krick and Remington have more divine guidance than I do.

Secondly, they express doubt that minocycline hydrochloride is effective in nocardiosis. The article quotes a number of other investigators who agree that this agent is of benefit in controlling this infection. No one denies the efficacy of sul-

fonamides. In fact, the article states, "Although sulfonamides have been the classic agents for treating nocardial infections it is now becoming apparent that other antibacterial agents are efficacious." This hardly denies the importance of sulfonamides.

The third point concerns the length of therapy and the denial that 77 days is "extended treatment." I am unable to locate the statement "extended treatment" in the article. However, it does touch on this point by stating, "To be successful, therapy must be aggressive even to the point of extending treatment for several months to a year beyond clinical cure." The patient was seen last thirteen months after the conclusion of therapy and was still well despite the continuation of immunosuppressive therapy. This does suggest that the treatment may have been adequate.

I would appreciate further information on what factor inspired this communication.

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More on Electromyography

TO THE EDITOR: I would like to respond to a letter on who should perform electromyography, written by Nickel and Ashley [Nickel VL, Ashley EJ: On the performance of electromyography (EMG) (Letter to the Editor). West J Med 120:500-501, Jun 1974]. I should say that any rationale for nonqualified individuals to perform electrodiagnosis is difficult for me to understand. A diagnostic test on which decisions are made with respect to surgery, disability, serious prognoses and recommendations for changes in life style should be performed by the most qualified individuals possible.

The American Association of Electromyography and Electrodiagnosis, the only organization in this country exclusively devoted to promoting the technique of electromyography and electrodiagnosis, has recently adopted a resolution indicating that only a physician-specialist with additional training in clinical neurophysiology and electrodiagnosis should be involved in the performance of the test.

There is a common misconception that electromyography is similar to electrocardiography, or electroencephalography, this is—a record made by a technician and interpreted later by a physician-specialist. This is not so, since the electrical activity is dependent on the electromyographer's actions at a given moment and is not recorded. Furthermore, there are no standard leads but rather more than 400 muscles to be investigated and many accessible nerves to do nerve stimulation studies. Furthermore, the examination is planned after an appropriate history and physical examination and then modified as the electromyographic findings unfold. Such a procedure is impossible for a technician no matter how well trained to perform.

My answer to Drs. Nickel and Ashley would be *NO* test is better than a test poorly performed which may mislead the referring physician.

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TO THE EDITOR: For over twenty-five years diagnostic needle electromyography has been performed by physicians. These physicians have almost entirely been comprised of specialists in physical medicine and rehabilitation, or specialists in neurology. The standard of practice throughout the United States and California is to have diagnostic needle electromyography performed by physicians specializing in these fields.

Over these past thirty years, a tremendous amount of information has accumulated in the field of diagnostic electromyography and a specialty organization, the American Association of Electromyography and Electrodiagnosis, has been in existence for many years. Our association, the A.A.E.E., has constantly strived to improve the training of physicians performing electromyography and to promote advancements and the dissemination of knowledge in electromyography. It is our feeling that a physician practicing diagnostic needle electromyography not only must have an excellent background in neurophysiology, neuroanatomy, and kinesiology but also should have formal education and experience in skeletoneuromuscular disorders, particularly those in which diagnosis through electromyography plays an important role. Within the last two years the American Board of Physical Medicine and Rehabilitation has considered that formal training in electromyography is so important as to make it an integral part of the residency training program.